

COMPONENT IDENTIFICATION METHOD AND TARGETING METHOD USING
THE SAME

Description

5 Technical Field

The present invention relates to a component identification method for providing effective targeting.

10 Background Art

According to digitalization of broadcasting, a broadcasting environment has been rapidly changed for providing multi-media broadcasting services through multiple channels to various receiving terminals capable of two-way broadcasting service by interlocking with a broadcasting communication network. Viewers want not only to passively receive a broadcasting program through limited channels but also to actively participate to a broadcasting service. Also, the viewers want to receive and to watch desired broadcasting programs whenever the viewers want.

That is, the broadcasting environment evolves into a complicated, diversified and personalized broadcasting environment. A customized broadcasting enables that a user consumes provided broadcasting contents whenever and wherever the user wants according to user's tastes by using various terminal in the complicated, diversified and personalized broadcasting environment. The customized broadcasting provides customized broadcasting contents according to a user's taste, a functionality of a terminal, a network characteristic and a nature environment such as a time, a place and a user's mood.

A standard of the customized broadcasting is divided to a phase 1 (TVA-1) and a phase 2 (TVA-2) according to an expected system environment and a main function to be

provided. The TVA-1 is a standard for providing application services for searching, selecting, acquiring and consuming of audio/video (AV) contents based on a personal digital recorder (PDR) in an environment where
5 main broadcasting program is transmitted through a one-way broadcasting channel and additional metadata is obtained through two-way network. The TVA-2 is a standard for providing content sharing between various terminals in a home network environment and a targeting service providing
10 contents according to various usage environments by expanding a consuming environment of TVA-1 which is the one-way broadcasting channel and two-way network. The TVA-2 is also standards for providing not only TVA-1 audio and video (AV) type contents but also other various types of
15 contents.

The targeting is an adaptive content service for adaptively providing contents to each of users according to not only the user's preference but also a usage environment such as a terminal and a network condition. For example,
20 if there are two terminals i.e., one terminal including a MP3 decoder and another terminal having a wave decoder, a package metadata provider provide two types of components with two different formats according to a decoder type of each terminal although the components are identical. The
25 package is a unit of selection combined with an AV program and various media components. The package has same notation of "digital item" in MPEG-21.

Under the above described scenario, a MP3 file format component has a content reference identifier (CRID)
30 identical to the wave file format component because both components have identical contents. However, the both components have different contents instance having different bit expression. Although the both components have different bit expression, same CRID is assigned to the
35 both components having identical contents regardless of a

user environment conditions.

Table 1 shows a package when a component is only identified by a CRID.

5 Table 1

```

    <Component>
    <Condition require="Audio_WAV"/>
    <Resource mimeType="audio/wav" crid="crid://www.imbc.com/
10 EngScriptperPhrase/FirstPhrase"/>
    </Component>
    <Component>
    <Condition require="Audio_MP3"/>
    <Resource mimeType="audio/mp3" crid="crid://www.imbc.com/
15 EngScriptperPhrase/FirstPhrase"/>
    </Component>
    </Item>

```

As described above, a conventional identification
 20 method using the CRID as an identifier of a component does
 not support the targeting which automatically matches
 appropriate component to given condition. Instead of
 supporting the targeting, the appropriate components are
 selected by comparing all locators of metadata having
 25 identical CRID for given condition. Also, it requires a
 user or an agent to intervene in selection of the
 appropriate components. Accordingly, it is necessary to
 identify component having same contents and different bit
 expression for the targeting. Also, it is necessary to
 30 provide a scheme to identify components when the components
 having identical contents, identical bit expression and
 different locations.

Disclosure

35 Technical Problem

It is, therefore, an object of the present invention to provide a component identification method using instance metadata identification with a contents reference identifier (CRID) and a targeting method for using the same.

Technical Solution

In accordance with one aspect of the present invention, there is provided a method for identifying components having identical contents and different bit expressions, the method including the steps of: assigning an identical content reference identifier (CRID) to each of the components; assigning different instance metadata identifiers to each of the components; and identifying the components by using the CRID and the instance metadata identifications.

In accordance with another aspect of the present invention, there is provided a component identification method for identifying components having identical contents, identical bit expressions and different locations, the component identification method including the steps of: assigning different instance metadata identifiers to each of the components having an identical CRID; and listing the assigned instance metadata identifiers in a package metadata having corresponding condition of an intended targeting.

In accordance with still another aspect of the present invention, there is provided a targeting service providing system for providing contents according to a usage environment to a user terminal, the targeting service providing system including: a package metadata generating unit for generating a package metadata according to a condition of the usage environment by using an instance metadata identifier with a CRID as a component identifier

for components having identical contents and different bit expressions; an encoding unit for encoding the generated package metadata; and a transmitting unit for transmitting the encoded metadata.

5 The package metadata generating unit may generate a package metadata by listing assigned instance metadata identifiers to components having identical contents, identical bit expressions and different locations in a package metadata having corresponding conditions of an intended targeting if there are the components having
10 identical contents, identical bit expressions and different locations existed.

In accordance with further still another aspect of the present invention, there is provided a user terminal,
15 including: a receiving unit for receiving a package metadata generated according to a condition of a usage environment by using an instance metadata identifier with a contents reference identifier as a component identifier for components having identical contents and different bit
20 expression; and a decoding unit for decoding the received metadata, wherein the user terminal obtains the component by using the component identifier of the decoded metadata and consumes the obtained component.

The receiving unit may receive a package metadata
25 generated by listing instance metadata identifiers assigned to components in a package metadata having corresponding condition of an intended targeting by using a CRID and an instance metadata identifier as a component identifier for the components having identical contents, identical bit
30 expression and different locations.

Advantageous Effects

A method for identifying components having identical
35 contents in accordance with the present invention

automatically matches characteristics described in a package to a condition of usage environment. Therefore, the method of the present invention provides effective targeting.

5

Description of Drawings

The above and other objects and features of the present invention will become apparent from the following description of the preferred embodiments given in
10 conjunction with the accompanying drawings, in which:

Fig. 1 is a diagram illustrating a targeting service providing system in accordance with the present invention; and

15 Fig. 2 shows a tree structure including a contents reference identifier (CRID), an instant metadata identifier and a locator in a content referencing in accordance with the present invention.

20 Best Mode for the Invention

Other objects and aspects of the invention will become apparent from the following description of the embodiments with reference to the accompanying drawings, which is set
25 forth hereinafter.

A component may have different bit expression although the component has identical content. The bit expression is an expression type of contents of the component. The contents can be expressed by various expression types such
30 as such as a coding formation i.e., mp3, wav, a bit rate or an aspect ratio. In the present invention, an instance metadata identifier (imi) is used with a content reference identifier (CRID) for identifying components having identical contents but different bit expressions. Unique
35 imi is assigned to each of the components having different

bit expressions.

By using a component identifier of the present invention, it is possible that a user identifies instances of components having identical contents with different bit expression and also obtains a component having a bit expression matched to a condition. It is included in a dependent identification using an instance metadata identifier.

Table. 2 shows a portion of a package metadata using an instance metadata identifier with a CRID as a component identifier. As shown in Table. 2, components having identical contents with different coding format such as wav or mp3 can be identified based on differently assigned imis i.e., imi:1, imi:2, with same CRID to each of the components.

Table. 2

```
<Item>
  <Component>
    <Condition require="Audio_WAV"/>
    <Resource mimeType="audio/wav" crid="crid://www.imbc.com/
      EngScriptperPhrase/FirstPhrase" imi="imi:1"/>
  </Component>
  <Component>
    <Condition require="Audio_MP3"/>
    <Resource mimeType="audio/mp3" crid="crid://www.imbc.com/
      EngScriptperPhrase/FirstPhrase" imi="imi:2"/>
  </Component>
</Item>
```

A targeting method using the above described component identifying method will be explained hereinafter.

Fig. 1 is a diagram illustrating a targeting service providing system in accordance with a preferred embodiment of the present invention. The targeting service providing

system 10 generates a package according to a condition of a usage environment. The package (or package metadata) is composed with an extensible mark-up language (XML) document as shown in Table. 2. If there are components having identical contents with different bit expressions, the targeting service providing system 10 uses an instance metadata identifier with a CRID as a component identifier. That is, unique instance metadata identifier is assigned to each of the components having identical contents with different bit expressions with the CRID.

The package metadata composed of a XML document is fragmented. The fragmentation of the package metadata is a step for dividing the package metadata to a plurality of fragmented units for independently transmitting, processing and updating the divided package metadata. After fragmentation, the fragmented package metadata is encoded and encapsulated. The encapsulation is a step for grouping the encoded fragmentized package metadata for transmitting. The encapsulated package metadata is transmitted to a user terminal 20 by using a one-way broadcasting system or a two-way system using an internet protocol (IP) network.

The user terminal 20 automatically or manually selects a component according to a usage environment i.e., a user's taste, a characteristic of the user terminal and a characteristic of the network among components included in a selected package. The selected component is obtained and consumed by a content referencing mechanism of a TVA-1 standard based on a CRID and an instance metadata identifier of the selected component.

As described above, the instance metadata identifier with the CRID is also used not only for generating a package in the targeting service providing system but also for selecting a component according to the usage environment of the user terminal.

Meanwhile, the component having same contents and same

bit expression may be located different locations. Fig. 2 shows a tree structure of CRID, instance metadata identifier and locator in a content referencing in accordance with a preferred embodiment of the present invention. As shown in FIG. 2, the instance metadata identifier is unique in a region of an assigned CRID and is only one per a pair of a CRID and a locator. Because of such a characteristic of the instance metadata identifier, component instances having identical characteristics i.e., same bit expression, cannot be identified from other component instances by single instance metadata identifier.

If there are components located different positions although the components have identical contents and identical bit expressions, a component locator is identified by using the instance metadata identifier when the package is generated in the present invention. The instance metadata identifiers for components having identical contents, identical bit expression and different locations are listed in a package metadata having corresponding conditions in case of using an intended targeting as shown in Table 3.

Table 3 shows a portion of a package metadata where a multiple instance metadata identifier is used and Table. 4 shows a schema of a resource referencing a component element. In Table 3, instance metadata identifiers imi:1 and imi:2 are assigned to the two components having identical contents, identical format i.e., wav and different locations. The instance metadata identifiers imi:1 and imi:2 are listed in a package metadata having corresponding conditions in case of using intended targeting. Accordingly, components having identical contents and identical bit expression are grouped as one component.

Table 3

```

    <Item>
    <Component>
    <Condition require="Audio_WAV"/>
5    <Resource mimeType="audio/wav" crid="crid://www.imbc.com/
    EngScriptperPhrase/FirstPhrase" imi="imi:1 imi:2"/>
    </Component>
    <Component>
    <Condition require="Audio_MP3"/>
10    <Resource mimeType="audio/mp3" crid="crid://www.imbc.com/
    EngScriptperPhrase/FirstPhrase" imi="imi:3"/>
    </Component>
    </Item>

```

15 Table 4

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    <element name="Resource">
    <complexType mixed="true">
    <attribute name="mimeType" type="string" use="required"/>
20    <attribute name="crid" type="tva:CRIDType" use="required"/>
    <attribute name="imi" type="tva:InstanceMetadataIdRefsType"
    use="optional"/>
    </complexType>
    </element>

```

25

Hereinafter, a targeting method using the component identification method will be explained with reference to Fig. 1.

The targeting service providing system 10 generates a package according to a condition of a usage environment. The package or the package metadata is composed of an extensible mark-up language (XML) document as shown in Table. 3. If there are components having identical contents, identical bit expression and different locations, 35 the targeting service providing system 10 uses the instance

metadata identifier with the CRID as the component identifier. The instance metadata identifiers assigned to the components having same contents, same bit expression and different locations are listed in the package metadata
5 having corresponding conditions.

The package metadata composed of the XML document is fragmented. The fragmented package metadata is encoded and encapsulated. The encapsulated package metadata is transmitted to the user terminal 20 by using a one-way
10 broadcasting system or a two-way system through the IP network.

The user terminal 20 manually or automatically selects a component according to usage environment such as a personal taste, a characteristic of a terminal and a
15 characteristic of network among components included in the selected package. The selected component is obtained and consumed based on a content reference mechanism of the TVA-1 standard by using corresponding CRID and instance metadata identifier. During selection, a component having
20 an instance metadata identifier voluntarily selected among instance metadata identifiers listed.

The above described methods can be implemented as a program and the program can be stored in a computer readable recording medium.

25 The present application contains subject matter related to Korean patent application No. 2003- , filed in the Korean Intellectual Property Office on October 2, 2003, the entire contents of which is incorporated herein by reference.

30 While the present invention has been described with respect to certain preferred embodiments, it will be apparent to those skilled in the art that various changes and modifications may be made without departing from the scope of the invention as defined in the following claims.

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